INTERNATIONAL COMPARISON OF SAVING RATIOS BY OCCUPATIONAL GROUPS (I)

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I. *Introduction*[1]

This paper aims to compare the saving ratios by occupational groups with family budget surveys in various countries and to find out why the saving ratio in Japan is higher than in the other countries. A broad comparison with the national accounts statistics indicates that the personal saving ratio in Japan is extremely high as is shown in Table 1. These facts have given rise to much discussions among Japanese economists. Some papers explained this high ratio as the result of large investments by merchants and artisans in their own businesses. Other explanations used the high speed growth of real income in Japan. But further analysis becomes very difficult when we use only the national accounts statistics. An interesting attempt may be made by using the family budget data in an international comparison, since we can get informations about incomes and expenditures by occupationl group and by income classes.

However many problems arise in this comparison. As the surveys on family budgets differ in each country, many differences arise in the classifications and in the statistical techniques in their researches. Especially, we must examine carefully the reliability of income estimates. It has been argued that the results of income estimates by family budget data include more statistical errors than those of consumption expenditures, and the incomes are researched only as a reference in *some* family budget data. The most preferable questionaires make balance sheets of incomes and expenditures and check the balance differences. Theoretically the balance sheets can be written in such a form as shown in Table 2. If all surveys are made with the balance sheet in Table 2, we can select the "reliable" surveys by checking the amounts of balance differences. However, there do not exist too many surveys using the balance sheets. For example, such surveys for worker's families are found only in 12 countries: the U. S. A., Denmark, Belgium, Puerto Rico, Panama, Norway, South Korea, Israel, Ryūkyū, Taiwan, Kennya, Nigeria and Japan. As family budget surveys for other family groups are much fewer than for worker's families, it is not enough to make international comparisons only with the surveys with balance sheets.

There are some family budget surveys which do not cover all items in Table 2 but inform us amounts of family incomes. Theoretically, family savings can be estimated by deducting consumption expenditures from disposable incomes. However, the reported incomes in family budget surveys are said to have a tendency to be under-estimated. In fact, even the results

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TABLE 1. INTERNATIONAL COMPARISON OF PERSONAL SAVING RATIOS WITH NATIONAL ACCOUNTS STATISTICS (1962 YEAR'S VALUES)

Countries	Per Capita Personal Disposable Income	Saving Ratio
U.S.	2,025 U.S. $	7.6%
Canada	1,411	8.9
Switzerland	1,283	8.7
Sweden	1,268	11.0
New Zealand	1,165	10.3
Denmark	1,149	8.9
France	1,078	8.0
Luxenburg	1,067*	13.6*
Germany (West)	1,063	12.7
Belgium	1,056	11.1
U.K.	1,028	6.0
Australia	766	12.4
Netherlands	731	11.9
Austria	664	7.1
Ireland	614	8.5
Trinidad & Tobago	442	8.9
South Africa	419	13.7
Chile	391	−6.1
Greece	384	12.3
Japan	371	21.4
Malta	366	17.9
Jamaica	339*	2.7*
Panama	322	−3.2
Spain	293	9.1
Costa Rica	291	2.5
Guatemala	233	1.4
Philippines	199	5.0
Colombia	197	1.8
Honduras	181	7.6
Equador	131	3.0
China (Taiwan)	122	11.5
Korea (South)	68	1.7
Burma	46	9.9
Mauritius	20	−0.5

Note: 1) The incomes are calculated with 1962 official exchange rates. 2) The values with astrisk are 1961 year's values.

Sources: U.N. *Yearbook of National Accounts Statistics*, 1964.

of family budget surveys with balances sheets have generally negative balance differences.[2] Therefore, it may be dangerous to use the income informations in family budget surveys without checks of balance difference. At least, we should not use family budget surveys with footnotes that the income estimates are not necessarily reliable[3] or small sample surveys

[2] As for the examinations of balance differences in family budget surveys, see, for example, Lamale, H., *Methodology of Consumer Expenditures in 1950*, University of Pennsylvania, 1959.

[3] For example, see *Urban Family Expenditure Surveys* in Canada, or *National Expenditure Surveys* in Pakistan.

TABLE 2. BALANCE SHEET OF FAMILY INCOMES AND EXPENDITURES

Income	Consumption Expenditures
	Taxes and Social Securities
Decreases of Assets	Increase of Assets
Increases of Liabilities	Decreases of Liabilities
	Balance Differences.
Total Incomes	Total Expenditures

without balance sheets. The family saving surveys may be the third group of statistical data for our purpose. These surveys inform us the family incomes and the amounts of savings by their components as well as the stocks of savings. We can find such surveys in some developed countries, for example, U.S., U.K., Sweden, India, and Japan. As the balance sheets can not be found in these surveys, we can not check their balance differences. But it has been said that the saving ratios from these surveys are more reliable than those from the family budget data without balance sheets. It should be noted that the "savings" used in the saving surveys are not equivalent to those used in the family budget surveys, for example, the formers do not include the increases of cash in hands.

In this paper, let us select the surveys according to following principles: (1) the family budget surveys with balance sheets will be adopted if the balance differences are not too large, (2) the saving surveys will be adopted, if we can not find the family budget surveys belonging to (1) in the countries, (3) we will adopt the family budget surveys in developed countries even without balance sheets, when these sample sizes are more than 500 or when the surveys have been executed every years and the saving ratios have not too much fluctuated year by year. Though we can find some data before the Second World War, the comparisons in this paper will be restricted to the surveys in *free* countries done after 1950.

It is important in the international comparisons to adjust the values in each surveys in the uniformed concepts. As the definitions in each survey are very different, it is difficult to decide the common concepts. The definitions in Table 3 were made with reference to those in I.L.O. *Bulletin on Family Budget Surveys, 1950-1960*, and Statistical Bureau, Japanese Government, *Family Income and Expenditure Survey*.[4] As we can get only the official publications in each country, the adjustments were made with approximations in some countries. However, the writer believes that the errors by these approximations are not too large to change the conclusions of the following analysis. In order to compare the values in different countries, we must decide the monetary exchange rates. We can not deny arguments that the official exchange rates in foreign trade are not suitable for consumption analyses and some attempts have been published to calculate the *real exchange rates*.[5] However, it is difficult to apply these results to our analysis, for these ratios have been calculated only in a limited numbers of countries. In the following calculations, let us use official exchange rates in 1960, as an approximation, after deflating by the consumer price indices based in 1960 for each country.[6]

[4] I. L. O. *Bulletin on Family Budget Surveys, 1950-1960*, Geneva, 1961. Statistical Bureau, Prime Minister's Office, Japanese Government, *Annual Report on Income and Expenditure Survey*.

[5] For example, Gilbert, M. and Associates, *Comparative National Products and Price Level*, O. E. C. D. 1958.

[6] In the calculations in this paper, the consumer price indices are referred to Chapter 20, I. L. O. *Year Book of Labour Statistics*.

TABLE 3. DEFINITIONS OF STATISTICAL VARIABLES

Variables	Definitions
Family size	In general, only those persons whose income is paid into the family fund and whose expenses are defrayed from the family fund are counted as the family members.
"Gross" income	Combined income of all household members from any sources: income from wages and salaries, profits from businesses (or farmings) including depreciation costs of business for tools and equipments, social and insurance benefits, gifts and assistances redeived and other incomes such as windfalls, gamblings, and inheritance.
"Net" income	"Gross" income minus the depreciation costs of business tools and equipments.
Tax	Direct personal taxes and payments to social securities.
Disposable Gross (or net) income	Gross income (or net income) minus taxes.
Liquid type saving	Demand and saving deposits, money owed to the families, stocks and bonds.
Investment to real properties	Purchase and improvement (in large scale) of dwellings and other real properties minus sale of dwellings and the properties. The depreciations of dwellings and properties are not adjusted.
Investment for business use	Net increases of business tools and equipment, including dwellings for business uses.
Gross investment for business use	Investment for business use plus depreciation cost of business tools and equipment.
Liability	Mortgage debts, money owed to banks, other companies and other families, money owed for rent, taxes, consumer durables and other goods and services.
"Net" Saving	Increase of cash in hand and liquid type savings, investments to real properties, investments for business uses, decreases of liabilities and premiums of life insurances minus settlements or surrenders of these insurances, and the account balance differences.
"Gross" saving	"Net" saving plus depreciation costs of business tools and equipment.
Accounts balance differences	The differences between reported total receipts and reported total disbursements (see Table 2).
Expenditures on consumer durables	Expenditures on household textiles, household durables (excluding T. V. and radios) and automobiles. Purchase is net of trade in allowances and discounts.

There may be many standards of classifications of occupational groups. But the writer believes that, at least, 4 classifications are necessary in the analysis of saving ratios. The first group includes worker's and salaried employee's families, which are typical consumer group. The second group consists of the non-farm self-employed families, whose saving ratios would be higher than the workers' as their saving includes the investments on their own businesses. The third group may be the farmers' families, whose saving includes investments as in the non-farm self-employed families but whose behavior differs from those in urban

families. The final group consists of the families without occupations. One of difficulties in such analyses is the differences of the classifications of occupational groups in each country. As the adjustments of these differences are nearly impossible, some reservations are necessary in the following analyses.

II. *Worker's Saving Ratios*

To begin with, saving ratios are compared in worker's families and those of salaried employees. The statistical materials on family budgets in this group are most abundant as is shown in Table 4. However, it should be noted that the coverages of surveys are not uniform: some surveys cover only the family budgets of manual worker's and others adopt families

TABLE 4. FAMILY BUDGET DATA FOR THE ANALYSIS OF WORKER'S SAVING RATIOS

Countries	Sample sizes[a]	Type of Survey[b]	Scope of Surveys[c]
U.S.A. 1960-'61		BS	W.S. in whole country
U.S.A. 1950	8,342	BS	W.S. in whole country
Switzerland 1951-'62	579	WBS	W.S. in whole country
Finland 1955/'56	532	WBS	W.S. in 18 cities
Denmark 1955	3,100	BS	W.S. in whole country
U.K. 1960-'62	2,087	WBS	W.S. in whole country
U.K. 1953		SS	W.S. in urban area
Belgium 1961	1,244	BS	W.S. in whole country
Sweden 1958		SS	Non-self employed family in whole country
Israel 1963	1,582	BS	Jewish W.S. in whole country
Germany (West) 1950-'62	275	WBS	Middle income workers with 4 family sizes in large cities
Norway 1958		BS	W.S. in whole country
Japan 1951-'62	2,571	BS	W.S. in all cities
Panama 1956	746	BS	W.S. in 3 large cities
Netherlands 1951	1,004	BS	W.S. in whole country
Puerto Rico 1953	1,070	BS	W.S. in whole country
Ryukyu 1957-'62	5,324	BS	W.S. in whole country
Burma 1958	2,776	WBS	W.S. in Rangoon
Ceylon 1953	1,085	WBS	W.S. in large cities
India 1960	about 560	SS	W.S. in cities
Taiwan 1954	1,442	BS	W.S. in whole country
Korea (South) 1960-'62	955	BS	W.S. in all cities
Korea 1957	1,678	BS	W.S. in Seoul
Kenya 1957	349	BS	African low income W
Nigeria 1959-'60	495	BS	African low and middle income W

Note: 1. *a*) Numbers of samples for worker's and salaried employee's families. When surveys are found in some years, the values in the final year is shown in this table. *b*) Notations in this column are as follows; BS—family budget surveys with balance sheets; WBS—family budget surveys without balance sheets; SS—family saving surveys. *c*) W.; —worker's families, W.S.—worker's and salaries employee's families.

2. As for the publications, see the final reference in this paper.

in large cities as their populations. These non-uniformities would induce the differences of average saving ratios, but let us adopt, as an approximation, the hypothesis that the saving ratios depend on the relative income positions in the income distributions in each country and that sociological factors on saving ratios are negligible.

In Table 5, the saving ratios S_1/y and the saving ratios in a broad sense, S_2/y are calculated. When we study the relations between the disposable income y and S_1/y, we find a positive correlation. But this correlation mainly originates from the different levels between in developed countries and in under-developing countries, and there are too many exceptions to assert a causal relation between y and S_1/y; for example the saving ratios in U.S. are too low compared with their income levels and the ratios are too high in Japan and the Ryukyu. In contrast to the result of S_1/y, we can get a positive correlation between y and S_2/y, though there remain some exceptions even in this case. Especially, the ratios S_2/y in Japan or the Ryukyu are not much higher than in other countries.

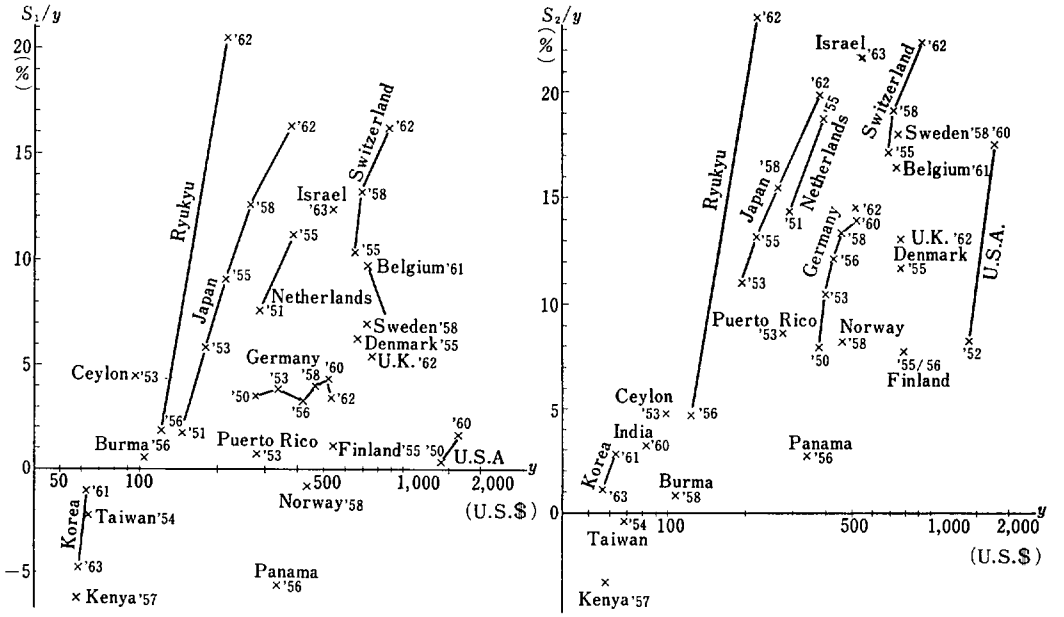
TABLE 5. INCOMES AND SAVING RATIOS IN WORKER'S FAMILIES

Countries	(1960 Year's U.S. $)	S_1/y (%)	S_2/y (%)
U.S.A. 1960-'61	1,724	1.62	17.6
U.S.A. 1950	1,435	−3.37	4.9
Switzerland 1962	883	16.01[a]	22.4[a]
Denmark 1955	760	6.20	11.8
U.K. 1962	754	4.45	13.0
Belgium 1961	719	9.80	16.5
Sweden 1958	709	6.95[b]	18.0[b]
Finland 1955-'56	532	1.04	7.7
Norway 1958	602	−0.71	8.1
Germany (West) 1962	516	3.53	14.0
Israel 1963	465	12.23[c]	21.5[c]
Japan 1962	372	16.21	19.9
Panama 1956	333	−5.05	2.6
Netherlands 1951	289	7.60	14.4
Puerto Rico 1953	273	0.93	8.6
Ryukyu 1962	258	20.50	23.7
Burma 1958	104	0.55	0.8
Ceylon 1953	97	4.32	4.7
India 1960	81	—	3.3[b][d]
Taiwan 1954	81	−2.32	−0.3
Korea (South) 1963	74	−4.98	1.2
Kenya 1957	59	−6.62	−3.4

Note: 1) Definitions on y, S_1/y, S_2/y were shown in Table 3.
2) *a*) including the expenses for premiums for other insurances than life insurance. *b*) excluding the increases of cash. *c*) excluding the increases of cash and deposits. *d*) deducting the depreciations on houses and consumer durables.

An interesting approach may be to compare the time-series changes in saving ratios in saving ratios in each country. As was mentioned before, surveys have not been executed for every year in many countries, and a systematic comparison of time-series changes by occupational groups is impossible. A broad comparison, however, can be shown in Figure 1, where

FIG. 1. TIME-SERIES CHANGES OF SAVING RATIOS



time-series movements of saving ratios are plotted in a correlation map. A distinguishep character can be found in the figures for S_2/y: the time-series changes shows positive correlations between y and S_2/y, but these lines have some "shifts" among countries. For instance, the line in U.S. exists at the right side of those in European countries, and lines in Asia countries are in the left side in this map. These shifts can be explained by different levels of savings and consumer durables. If the amounts of these stocks affect negatively on the current savings, the lines in the more developed countries tend to shift leftward. In order to prove this hypothesis, we must analyse the effects of the stocks of savings by using the statistical materials on the stocks of savings and consumer durables,[7] but these attempts will be left for a future work.

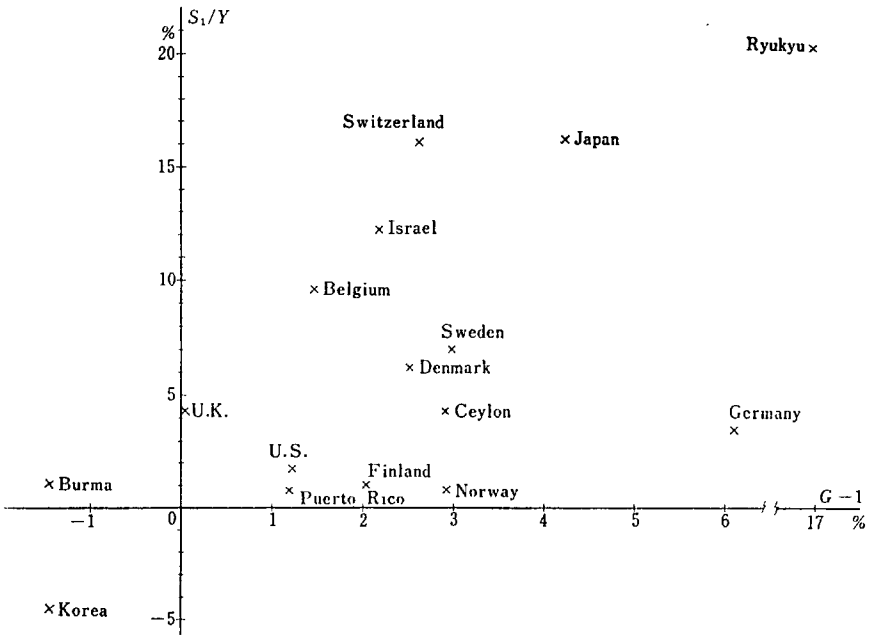
Now, let us proceed to find the factors determining the levels of S_1/y. As few systematic relations can be found in Figure 5 (a), the levels of S_1/y can not be explained by level of y even if the effects of stocks of savings are considered. One of the important factors may be the growth rates of income levels in worker's families. From the view-point of the supply of savings, the higher levels of saving ratios would be attained more easily when income grows rapidly. This hypothesis can also be supported if we assume a reasonable ratio of saving stocks to the current incomes in order to keep stable consumption behaviors corresponding to income levels. When this assumption could be accepted, the higher growth of income would demand higher saving ratios to fill up the differences between the desired levels and the current levels of saving's stocks. The difficulty in checking this hypothesis is how to find the time-sequences of income data for worker's families. As we can not find family budget data

[7] The statistical data on the stocks of savings and consumer durables by occupational groups can be found in some family saving surveys.

every year in many countries, we must find some supplemental data. One of these materials may be wage statistics.[8] As the concepts of wages and their research methods are different among countries, some reservations might be necessary in these analysis. But the results shown in Table 6 are interesting, because G-1 seems to be positively correlated with S_1/y. But this relation has some exceptional samples as is shown in Figure 2. For example, the saving ratios in West Germany and Taiwan are very low compared with their income growth rates. Therefore, we must examine some subsidiary factors to explain the differences of S_1/y.

The first factor is the changes of consumer prices. As S_1 includes liquid type savings, the ratio S_1/y tends to be smaller when the consumer prices rise rapidly. The exceptional values in Taiwan in Figure 2 may be explained by the violent inflation after the Second

FIG. 2. SAVING RATIO S_1/y AND GROWTH RATE OF REAL WAGE



World War. But this factor remains as a supplemental factor, because $G(P)$ shows nearly zero correlation with S_1/y. The second factor concerns the relative income of sample families in each country. In Table 6, the per capita incomes in family budget data are divided with those in the National Income Statistics[9] in each country. This ratios are higher in under-developing countries, because the incomes are very low in farmers' families in those countries.[10] However, we can find some exceptional values in this trend; i.e. the value in Finland is high and that in West Germany is very low. The latter fact explains why the saving ratios are

[8] The wage data are referred to the "general levels of wages" in Chapter 16, I. L. O. *Yearbook of Labour Statistics*.

[9] As for the data, see the footnote in Table 1.

[10] Another reason can be found in the research methods in these countries; the samples are distributed only in large cities, where the family incomes are higher than in other areas.

low, considering the level of the growth ratio of real wages. As is noted in Table 3, the samples of this family budget data are selected from a very particular population, so the average saving ratio in all workers' families in West Germany may be much higher than the ratio in Table 6. The third factor can be derived from the permanent income hypothesis. According

TABLE 6. FACTORS INFLUENCING ON SAVING RATIOS S_1/y

Countries	S_1/y (%)	G-1 (%)	G'/G (%)	$G(P)$ (%)	y/Y (%)
Ryukyu 1962	20.5	16.92	94.75	107	112.2
Japan 1962	16.2	4.21	98.97	119	92.0
Switzerland 1962	16.0	2.63	100.98	107	72.7
Israel 1963	12.2	2.21	102.93	129	(68.5)
Belgium 1961	9.8	1.45	100.90	104	71.3
Sweden 1958	7.0	2.93	98.01	106	68.1
Denmark 1955	6.2	2.51	98.00	116	86.9
U.K. 1962	4.5	0.05	98.80	110	79.1
Ceylon 1953	4.3	2.92	103.93	106	(118.0)
Germany 1962	3.5	6.11	99.62	109	51.7
U.S. 1960-'61	1.6	1.21	99.44	109	89.5
Finland 1955-'56	1.0	2.02	104.76	103	127.2
Puerto Rico 1953	0.9	1.16	103.85	124	(58.2)
Burma 1958	0.6	−1.12	97.50	122	110.0
Norway 1958	−0.7	2.97	96.27	110	(65.9)
Taiwan 1954	−2.0	13.60	89.99	211	74.9
Korea 1963	−5.0	−1.91	93.22	163	(120.5)

Note: 1) Notation: $G=W(t)/W(t-4)$, $G''=W(t)/W(t-1)$, $G(P)=P(t)/P(t-4)$, W, real wage rates, P, consumer price indices, t, research year, Y per capita disposable personal income (evaluated in 1960 U.S. $) in U.N. *Yearbook of National Accounts Statistics.*
2) the blanckets in the final column are calculated by per capita consumption expenditures in surveys divided by those in National Accounts Statistiscs.

to this hypothesis, saving ratio should be higher when the growth rates of income in research years are higher than the average rates in past "usual" years. In order to check this assumption, the growth rates of real wage rates in research years G', is compared with G mentioned before. Though ratio G'/G is not significantly correlated with S_1/y, there are some cases to explain the deviations in Figure 2. The final factor may be the effects of the social security systems. In Figure 2, the saving ratios are relatively low in the some developed countries because of social securities system: in Sweden, Finland and in Norway. However, there are many exceptions in this explanation, so we cannot assert this effect without some checks.

Now, let us proceed some numerical analyses on these factors. For this purpose, a regression equation

$$S_1/y=a+b(G-1)+cG(P)+dy/Y+eG'/G \qquad (1)$$

is calculated by a usual least-square method. The calculated results of the parameters as well as the partial correlations are shown in Table 7. In this calculation, the values in Taiwan are excluded, because the consumers' behavior was abnormal because of the violent inflation in that period. According to this table, only the parameter of G-1 is statistically significant. However, the partial correlation of G'/G is high as well as that of G-1. The partial correlation of $G(P)$ is rather low but the sign is consistent with the *a priori* hypothesis, but we can

TABLE 7. ESTIMATION OF MODEL (1)

Variables	Coefficient	Partial Correlation
constant term	−0.00039	—
G	1.17705 (0.41810)	0.6319
$G(P)$	−0.00941 (0.37659)	0.4352
y/Y	−0.01939 (0.07394)	−0.2164
G'/G	45.30547 (56.57233)	0.6383
Multiple Correlation	0.70768	

not prove a significant effect of y/Y on the saving ratios, S_1/y. The next examination is the analysis of the residuals of the regression equation (1). First, the correlation between the residuals and y is only 0.0321, which is statistically insignificant. Secondary, if we divide all countries in Table 6 into three groups on the basis of the degrees of achievements of social security systems,[11] we can find a few but statistically insignificant differences of residual levels among these groups, as is shown in Table 8. In a summary, the international differences of

TABLE 8. THE ANALYSIS OF RESIDUAL OF MODEL (1)

Group	Average Residuals	Countries
I	−0.325	Denmark, Finland, Norway, Sweden, U.K.
II	0.176	Belgium, Israel, Germany, Switzerland, U S.
III	0.147	Burma, Japan, Korea, Puerto Rico, Ryukyu

S_1/y can be explained by four factories; i.e., the growth rates of real wages G-1, the ratios of growth rates of real wages in the research years to G, G'/G the average changes of consumer price indices, $G(P)$.

Now let us develop our analysis into an international comparison of saving ratios by their components. The surveys for this purpose are fewer than in Table 5, and the adjustment of differences in definitions are more difficult. When we study the figures of Table 9, we can find some characters by saving components. The liquid-type saving ratios are negative or slightly positive except in Japan, and the changes of liabilities show generally negative values. The saving ratios in the type of real investments are comparatively large even in under-developing countries. This fact may be partially explained by the differences of the definiton of real investments: the main part of real investments consists of private residential constructions and of the "large scale repairs" of houses, but the definitions of the latter may be broader in under-developing countries. However, more fundamental reasons can be found in the saving behavior itself in these countries. That is, as the political or economic conditions are unstable in these countries, the consumers tend to hold their savings in real assets. Furthermore, in some under-developing countries, there is a tendency to hold their savings in the form of gold or ornaments, which are defined as a part of consumption expenditures in this paper. Therefore, this assertion can be expressed more remarkably if we changes our definition of saving. In contrast with real investments, the expenditure ratios for life insurances are positively correlated with absolute income levels.

[11] The classification is executed with reference to the ratios of the expenditure for social security to national incomes, calculated by Emi, K. "Saving Ratios and Social Securities" *Keizai Kenkyu*, Vol. 17, No. 4, 1966 (*in Japanese*).

TABLE 9. COMPARISON OF WORKER'S SAVING RATIOS BY THEIR COMPONENTS

		Per Capita disposable income (1960 U.S. $)	Saving Ratios (%)						
			(1) Increase of liquid type saving	(2) Increase of cash in hand	(3) Life insurance	(4) Investment on real assets	(5) Expenditure on consumer durables	(6) Decrease of liabilities	(7) Account balance differences
U.S.A.	1950	1,435	−0.9	to (1)	4.5	2.0	7.3	−5.1	−4.0
Denmark	1955	785	0.9	−1.2	2.3	3.1	7.8	1.1	to (2)
Belgium	1961	719	−0.4	2.8	0.6	4.5	8.1	1.2	0.8
Israel	1963	538	1.6[a]	?	2.4	11.8	9.3	−3.6	?
U.K.	1953	444	−4.3	?	2.1	to (1)	?	0.6	?
Japan	1962	372	6.0[b]	1.7	3.2	1.3[c]	3.9	3.9	to (2)
	1958	254	4.6[b]	2.1	3.4	0.9[c]	1.4	2.2	to (2)
	1953	186	2.6	2.5	2.5	−1.5[c]	4.0	0.2	to (2)
Korea[d]	1957	151	0.1	0.7	0.4	1.4	3.8	−1.8	0.0
Nigeria	1957	92	−14.5	−1.4	0.0	8.5	7.0	−5.8	to (2)
Taiwan	1954	67	0.4	−1.9	0.2	−0.4	1.7	−0.1	to (2)
Kenya	1957	59	−7.1	−1.3	0.0	6.0	2.8	−4.2	to (2)

Note: 1. The Values in this takle are not necessarily consistent with those of Table 1.
2. *a*) excluding the increase of demand deposit, *b*) excluding the increases of stocks and bonds, *c*) including the increase of stocks and bonds, *d*) Survey in Seoul only.

When the saving ratios in Japan are investigated, some special characteristics can be found in Table 9: (1) the liquid type saving ratios in Japan are extremely higher than in the other countries and these saving ratios have an upward trend in the time-series changes in Japan, (2) the real investment ratios are lower than in the other countries, (3) the changes of liabilities shows positive values. These three characters can be examined according to two different view-points. First, the characters, (2) and (3), are partially explained by the peculiarity of the family budget data in Japan. The family budget data, called *Family Income and Expenditure Survey*, have been published every month since 1951, and the data have been used to analyse the time-series changes of incomes, savings and consumptions. In order to avoid drastic changes in time-series caused by the replacement of samples, the survey seems to exclude the "abnormal families" that get the new houses or land in recent periods or those having large liabilities in those periods in the sample selection.[12] There is no official statements to support these suggestions as far as the writer knows. But an indirect check may clarify the character of the family budget surveys. Since 1959, a family saving survey, called *Family Saving Survey*, has been published. As the statistical techniques in this survey are same as those in the family budget surveys mentioned above, the results are comparable. A comparison shown in Table 10 is very interesting, because the saving ratios by components are rather different although the total saving ratios are similiar. Especially, the ratios of real investments are larger and those of decreases of liabilities are smaller in *Family Saving Survey* than in *Family Income and Expenditure Survey* and the values in the former indicates greater similarity to those in the other countries. If we adopt the values of the former, the special characters 2) and 3) are, at least partially, explained.

[12] These considerations would be necessary because the sample sizes in each month are not too large.

TABLE 10. COMPARISON OF SAVING RATIOS IN TWO SURVEYS

	1962	
	Family Saving Survey	Income and Expenditure Survey
Increase of demand and saving deposit	6.0	3.3
Increase of stocks and bonds	1.3	3.3
Investment on real assets		4.0
Decrease of liabilities	1.3	−0.4
Decrease of consumer's credit	2.6	?
Life insurance	3.2	3.2
Increase of cash in hand	1.7	?
Accounts balance differences		?

The most important characters of the saving behavior in Japanese worker's families is that the liquid-type saving ratios are much higher than in other countries. The explanation of this fact is very difficult and we can suppose many factors. For example, the rate of interests on deposits is higher in Japan than in the other countries. Other explanation may be unique customs concerning saving behaviors in Japanese families or some promotion movements for saving taken by Japanese banks. However, the writer thinks that the following two factors should be examined. The first factor concerns the consumer's finance systems in Japan; i.e., though the amounts of consumer's finances have been increasing recently in Japan, the systems of consumer's finance have been less developed in Japan. Usually, Japanese consumers have very little chances to get the consumer financing with the long-time payments if they have not some stocks of liquid-type savings. In addition, the rates of interests of the consumer's financing are much higher than in the Western developed countries. These economic circumstances would keep down the expenses for new houses or for the large scale consumer durables. Especially, the prices of lands in large cities are very high compared with Japanese income levels and this fact prevents the constructions of private owner's housing not withstanding that the demands for private houses are very significant. When the savings are compared by tenures of families and by their income classes, the liquid type saving ratios are higher in renter families than in owner families if their income levels are equal. However, these peculiarities in Japanese saving behaviors will be gradually vanishing because the consumer finance systems have been developing in recent years. The second factor is related to the stocks of liquid-type savings. It has been mentioned that the stocks of liquid-type savings are too low compared with their income levels. If this suggestion is applicable for worker's

TABLE 11. COMPARISON OF INCOME AND STOCKS OF SAVINGS BY THEIR COMPONENTS (WORKER'S FAMILIES)

		Ratios to Disposable Income				
		Deposit Saving	Stocks and Bonds	Life Insurance	Liabilities	Real Assets
U. K.	1953	22.3	2.8	?	16.0	75.2
Sweden	1958	45.4	35.7	9.5	39.7	116.6
Japan	1962	28.5	18.1	16.6	7.0	?

families, the special character mentioned above may be partially explained. The comparison shown in Table 14, however, seems to contradict to this hypothesis.

The above arguments suggest to us that S_1/y in Japanese worker's families are higher than in the other countries, and this higher saving ratios are supported by the high growth rate of real wage rates in Japan. In addition, it should be mentioned that this fact relates with much higher ratios in the liquid-type savings. At the income in worker's families holds 40.7% in the disposable personal income in Japan in 1963,[13] this conclusion is very important in explaining the higher rates of the personal saving ratios in Japan, though it is also necessary to refer to the comparisons of saving ratios in farmers', non-farming self-employed and other families, which will be shown in part (II) of this paper.

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